DELAWARE CENTER FOR THE
INLAND BAYS
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Inland Bays Journal

Softer Solutions for Erosion at the Edge of the Bays

By Sally Boswell, CIB Education and Outreach Coordinator

On a 350-foot stretch of eroding marsh shoreline on Salt Pond in Bethany Beach, the Delaware Center for the Inland Bays (CIB) began work this spring on the Loop Canal Living Shoreline Demonstration Project. It's the first project in a major initiative to preserve natural shorelines on the Inland Bays. The site is on the north side of the Loop Canal and is adjacent to the Delaware National Guard.

As communities have developed around the Inland Bays, long stretches of shoreline have been 'hardened' with stone rip-rap or bulkheads. While these can be effective in halting erosion, they take a big toll on bay life.

It was a soaking wet 40 degrees the day construction began at Loop Canal. The wind blew cold rain out of the northeast and drove waves into the marsh. It was a perfect day to see the power of the storms and tides that have battered this shoreline and caused sections of the marsh to collapse and wash away.

"The goal of the project is to protect the shoreline against further erosion and to rebuild the marsh by restoring sediment to the area that has lost ground," according to Bob Collins, Project Manager. *(continued on page 6)*

Volunteers install coir fiber logs to create a series of 'cells' close to shore to trap sediment so the marsh can rebuild.

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The Inland Bays Journal is a publication of the Delaware Center for the Inland Bays. The CIB is a nonprofit organization and a National Estuary Program. The purpose of the Inland Bays Journal is to educate and inform citizens and visitors to the Inland Bays watershed about this "estuary of national significance."

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Dear Friends of the Bays,

It's easy to be dismayed by the few, but well-publicized opinions that pollution is someone else's problem and that climate change isn't happening. Harder still is watching Congress play political football with climate science, while **here in the lowest lying state in the nation, flooding and erosion worsen.**

Maybe people just don't care...

Well that's not the case in Delaware, where a recent survey reveals that you are not alone in your desire for healthy waterways! In fact, your community is acutely aware of the important environmental challenges in Delaware. **People want solutions, and are willing to pay for them.**

- A 2014 phone survey found that Delawareans have deep concerns about the quality of their water. Many expressed apprehension about the safety of drinking water and about consuming seafood from local waters. **Only a quarter of residents feel the State is doing enough to ensure the waters are clean, and a solid 57% would support a state fee to clean up water pollution.**
- A 2014 phone survey of 1,508 Delawareans found that 79% agree that climate change is a threat and 68% are worried about sea level rise. **76% and 72% agree that we should take immediate to action to reduce the impacts of climate change and sea level rise**, respectively.
- A web survey conducted in February found that 72% of boaters rated the depth and marking of Delaware's waterways for navigation to be fair or poor and that **71% were in favor of a graduated increase in boater registration fees to fund improvements.**

When citizens know their taxes will be managed responsibly to clean up and maintain local waters, they want to contribute. Given that the nearly $7 billion coastal economy of Sussex County is supported by clean water, that's a good investment.

I hope you read on in this issue of the Inland Bays Journal about how the Center is working to promote increased funding for clean water. And that you let those that represent you know that clean water is your priority as well!

Chris Bason, Executive Director

Clean Water Campaign: Delaware's Clear Choice

By Roy Miller, CIB Policy Coordinator

A recent survey of 400 randomly selected Delawareans revealed that a majority of those questioned support increased investment in clean waters, even if it entails a modest fee to generate the needed funds.

The survey conducted by a non-partisan research firm, found that Delawareans are not satisfied with the restrictions imposed due to present levels of water pollution, such as advisories on eating fish, constraints on water use, and closures on other forms of recreation in our surface waters.

In response, the Delaware Center for the Inland Bays has joined with the Delaware Nature Society, the Partnership for the Delaware Estuary, and other conservation groups to secure the funding needed for cleaner water for all Delawareans.

The campaign, called "Clean Water: Delaware's Clear Choice," aims to build grassroots support for investment in cleaner water. Its objective: to persuade elected officials that this is worthy of their attention, and that investments in clean water now will pay benefits today and in the future.

Many of the state's waterways are polluted due to failing infrastructure, excess nutrients, and contamination from chemicals. Partners in the campaign agree that Delaware needs safe drinking water and clean water for the recreation important to Delaware's tourism and economy. They recommend that funding for clean water should go to:

- Remove toxics and chemicals from our streams and rivers
- Repair and update wastewater and drinking water treatment plants
- Reduce community flooding and increase storm resilience
- Support sustainable conservation/agricultural practices
- Protect and restore important natural resources like wetlands and forests

TAKE ACTION!

- Go to **cleanwaterdelaware.org** and sign the Clean Water Pledge.
- Go to Clean Water: Delaware's Clear Choice Facebook page for events and information **facebook.com/cleanwaterdelaware**.

IT'S TERRAPIN TIME!

on the Inland Bays, and in coastal bays up and down the Atlantic coast.

The fencing to keep terrapins off of Coastal Highway between Dewey and Bethany Beach was another casualty of the hard winter. Maintained by Delaware State Parks, the fencing has been effective at keeping most female terrapins off the highway during their spawning season when they leave the Inland Bays and head for the soft sands of the ocean dunes to lay their eggs. Chris Bennett, Natural Resources Manager with Delaware State Parks, planned to make repairs to the fencing in mid-May. "We wouldn't expect to see them on the move until about June 1. If you're seeing turtles in early May, they could be hatchling terrapins born last year, or snapping turtles," said Bennett.

Drivers on the beach stretch of Coastal Highway between Memorial Day and the 4th of July are cautioned to keep an eye out for the turtles so that those who cross can make it safely. Terrapins are listed as a 'species of concern' in Delaware and some other coastal states, and 'threatened' or 'endangered' in others. What is generally agreed is that Diamondback terrapin populations are decreasing throughout most of their range.

Little is known about the population of Diamondback terrapins in Delaware, but an effort is underway to change that. Holly Niederriter, Wildlife Biologist with DNREC is the state representative from Delaware working with other coastal states to develop a Mid Atlantic Diamondback Terrapin Conservation Plan. The lead organization for the study is the Conserve Wildlife Foundation of New Jersey.

Neideritter hopes for two outcomes from the effort:

- A 'roadmap' for how to get population data about terrapins in Delaware so that we know the true status of the species in the state;
- A list of potential conservation actions that could be adopted and implemented to safeguard the species in Delaware.

TAKE ACTION

- Watch out for terrapins on the road…they're on the move late May to mid-July.
- Make sure that your crab pots have a 'turtle excluder' on them to prevent terrapins from entering them and drowning. These devices are required by law in Delaware.
- Don't leave crab traps untended or abandon them at the end of the season.
- Support public policy to protect wetlands; nationwide more than 75% of salt marshes where terrapins lived have been lost or altered.

Diamondback terrapin

The Love Creek Team Took a *Walk on the Wild Side* at Angola Neck Nature Preserve

After exploring Love Creek by kayak last summer, the Love Creek Team met for a walk at the Angola Neck Nature Preserve to see one of the Inland Bays' rarest habitats, a sea-level fen, and learn about a re-forestation project underway at the Preserve.

Sally Boswell, Education and Outreach Coordinator and Project Manager of the Your Creek project and Rob Line, Environmental Stewardship Program Manager at DNREC led the walk. Fourteen team members and CIB staff gathered at a meeting point off Camp Arrowhead Road on a warm afternoon in late April.

Elaine and Ed Perry, whose father donated much of the Perry Tract of Angola Neck Preserve, live adjacent to the Preserve and lent stories to the adventure. Local farmer, Laura Hill and upstream neighbor, Steve Britz were there, as well as three neighbors from across the creek at Mulberry Landing, Love Creek Team Leader Susie Ball of Arnell Creek and eight other members of the Team attended.

After introductions, the team crossed the road to a field formally farmed in small grain, soybeans and corn.

Last fall, with the help of volunteers, the CIB planted 4,200 native trees and shrubs in this five plus acre field, the first phase of a re-forestation project to improve wildlife habitat and enhance water quality.

Today, they are just rows of seedling, but when they mature, the shortleaf pine, willow oak, southern red oak, persimmon, American plum, northern bayberry, and viburnum will create a forested corridor from Love Creek to other wetland areas further inland. Many species of neo-tropical migratory songbirds will benefit from the mixed hardwood and pine forest community in this old farm field.

Re-forestation of croplands is one remediation strategy to decrease the amount of fertilizer flowing into our creeks and bays. The nutrients in fertilizer cause a cascade of problems for the Inland Bays. The nitrogen and phosphorus in fertilizer promote algae growth which can cloud the water, preventing sunlight from reaching the bottom where it is needed by bay grasses. The loss of bay grass eliminates important nursery areas and shelter for finfish and shellfish.

The Love Creek Team, a group of local residents who live on and around Love Creek will be sharing the 'State of Love Creek' report and their experiences on and around the Creek with homeowners associations, civic groups, churches and other organizations beginning this summer. To schedule a speaker for your meeting contact Sally Boswell at outreach@inlandbays.org. To learn more about Love Creek and the work of the team go to **inlandbays.org/projects-issues/love-creek**.

left: Laura Hill, right: Ed Perry

JUST LAUNCHED! The Love Creek Blog! *On and Around Love Creek…making friends for Love Creek*. Blogger in chief is Dr. Steve Britz who lives and paddles on Love Creek. Check out all his findings and photos from last summer...and read his latest posts. **inlandbays.org/CIBblog**

(Loop Canal continued from page 1)

Project Manager, Bob Collins at the Loop Canal Living Shoreline site where the marsh is breaking up due to shoreline erosion.

The project incorporates techniques and materials to address the specific conditions of this shoreline. It includes an offshore 'breakwater' of logs anchored to the bottom in a herringbone pattern to decrease wave energy hitting the shore. Closer to the marsh, coir fiber logs were placed to create enclosed areas to capture sediment as it drops out in the less turbulent zone behind the breakwater.

Sandy beaches, verdant salt marsh, forested banks are all natural living shorelines, providing spawning areas for horseshoe crabs and terrapins, feeding areas for shorebirds, and habitat for whole communities of mussels, snails, and macro invertebrates. Reptiles, worms, amphibians, insects, snails and crustaceans find food, and are food, in this rich web of life at the edges.

The project is a partnership with the Town of Bethany Beach, the DNREC Mosquitto Control Section, Division of Parks and Recreation, and the Delaware National Guard who provided access to the site. Funding was provided by the Town and from the DNREC Community Water Quality Improvement Grant Program. The design consultant was Doug Janiec of Cardno, Inc., now of Sovereign Consultants, Inc.

The CIB Living Shoreline Initiative aims to promote living shorelines and demonstrate options for shoreline protection.

In the coming year, Dr. Marianne Walch, Science and Restoration Coordinator at the CIB, said "we plan to select and prioritize five additional demonstration sites on the Inland Bays."

The criteria for selecting the demonstration sites will be:

- Public access to view the site
- Selection of low and high wave energy sites including creek banks and open water
- Opportunity to demonstrate multiple designs and techniques employed in successful Living Shorelines projects
- Opportunity to incorporate a range of materials used in Living Shorelines including, coir fiber logs, oyster shell and shell castles, and plant material.

The CIB is also focused on education about living shorelines for owners of bay-front and creek-front property, and for consultants and contractors. In February, CIB Education and Outreach Coordinator Sally Boswell partnered with DNREC and the Partnership for the Delaware Estuary to offer a two-day training to introduce marine contractors and consultants to the design and construction of living shorelines. The workshop included site assessment, use of structures and technologies, use of native grasses to re-vegetate marsh areas, and strategies for addressing shoreline loss at high energy sites while protecting the ecology of these critical areas.

Two years ago, the CIB convened a statewide Living Shorelines committee and continues to work with these partners to advance the science, educate the public, and address regulatory barriers in support of Living Shorelines in Delaware.

For more information on Living Shorelines, go to inlandbays.org.

The project design uses logs to create a breakwater to reduce the wave energy hitting the shoreline.

This photo shows the quieter water on the marsh side of the log breakwater structure.

A Living Sculpture—the Middle Island Rookery

Great egrets on rookery

above: egret eggs and chicks

above: American oystercatcher

In 2009, the Delaware Center for the Inland Bays developed and installed a unique artificial nesting structure for Great blue heron and egret on a privately owned island between Indian River and Rehoboth Bay. The island was once a rookery for heron and egret, but after decades of erosion the trees that had filled with nests each year were gone...would the birds return to this engineered rookery?

Each year since the rookery was erected, Matthew Bailey, a wildlife biologist with the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program, has returned to count nests and chicks.

This spring Bailey made his first site visit of the year to Middle Island, joined by colleague Ken Bronson and piloted by Dave Ritondo on the CIB pontoon boat. "It was a day of high wind and seas, but a good day for egret and heron."

"Things were really cooking on Middle Island. We estimated that there were at least forty five Great egret pairs with nests. To our surprise, one egret nest already had two chicks in it! The scaffolding was also being well used by Great blue heron. Due to the strong winds, they were hunkered down, but we were able to see that all but two of the baskets were occupied with incubating herons."

The team also saw four pairs of American oystercatchers on the island. That is a virtual oystercatcher convention for this bird which is listed as an endangered species in Delaware.

After a coordinated, five-year restoration effort by conservation groups and state agencies from Canada to Texas, in Delaware "the numbers of American oystercatchers appear to be stable with about fifteen nesting pairs over the last four years," according to Bailey.

"This is a species that we targeted for banding for several years. Of the eight oystercatchers we saw, five had been banded and we were able to get reads on the band letters that identify the birds individually." The team only found one oystercatcher nest, but he said that the other pairs are likely to nest soon.

This highlights the importance of the islands on the Inland Bays which offer the nesting birds some protection from foxes, raccoons and other predatory mammals. Oystercatchers eat bivalves and marine invertebrates, so they stay close to the coast. Boaters can help by staying off of island beaches where these ground nesting birds are difficult to see.

If you're on the Bays near Massey's Ditch, you can see the rookery from the water.

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DAVE JONES… on board with the Bays!

We'd like to recognize a local business that has been on board with the Bays for many years now. **Atlantic Refrigeration and Air Conditioning** is not only a donor and sponsor of our many special events, owner, Dave Jones, helps promote the Center for the Inland Bays by inviting friends and colleagues to CIB functions to bring them on board with the Bays; promoting the necessity of giving to support our work to preserve and protect the Bays.

Jenn Jones, Development and Marketing Coordinator accepts a gift of support from Dave Jones.

As a Business for the Bays member, Dave realizes that we are all in this together and that healthy, thriving Inland Bays are good for our entire community. The more voices we have in the community sharing the message that clean and healthy Bays matter, the more people will get on board.

To learn how you can get on board, contact Jenn Jones at development@inlandbays.org.

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